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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,934	12/29/2004	Motohisa Ido	OHTN:020	5083

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EXAMINER	
CROUSE, BRETT ALAN	
ART UNIT	PAPER NUMBER
1794	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,934	IDO ET AL.	
	Examiner	Art Unit	
	Brett A. Crouse	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☒ Claim(s) *11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment, filed 25 September 2007, which amends claims 1 and 6, and adds new claim 11. Claims 1-11 are pending.

Response to Amendment

The rejections of:

claims 1-10 under 35 U.S.C. 102(b) as being anticipated by Hosokawa et al.; EP 1,167,488;

claims 1, 2 and 4-6 under 35 U.S.C. 102(b) as being anticipated by Shi et al., US 5,935,721;

claims 1-2 under 35 U.S.C. 102(b) as being anticipated by Kobori et al., US 6,285,039;

claim 7 under 35 U.S.C. 103(a) as being unpatentable over Shi et al., US 5,935,721, as applied to claims 1, 2 and 4-6 above;

and

claims 4-10 under 35 U.S.C. 103(a) as being unpatentable over Kobori et al., US 6,285,039, as applied to claims 1-2 above;

are overcome by the amendment, filed 25 September 2007.

Claim Objections

Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the

claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 11 includes a spiro compound having silicon as the linking group between the phenyl rings. Claim 1 requires a carbon linkage. Thus the structure fails to further limit the claim from which it depends.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "mainly". It is unclear as to the scope of the term "mainly".

Claim 10 recites the limitation "as a main component". It is unclear as to what constitutes a main component.

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection as set forth below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Xie, US 2003/0215667, hereinafter known as Xie.

Xie teaches:

As to claims 1, 2 and 11:

Paragraphs [0015]-[0024], formula (I), teach anthracene derivatives of formula (I) for use in electroluminescent devices. The passage additionally teaches that compounds of formula (I) exhibit a high charge mobility and can act as a host material for a dopant in the light emitting layer.

Paragraph [0067], teaches representative examples of compounds of formula (I). Attention is directed to compounds (Ia-3,4,7,8,27,28,31,32,34,36,48) in which R^5 is a phenyl or naphthyl group.

Paragraphs [0068] and [0069], teach a more favorable structure in which, relative to the instant invention Ar and Ar' are fluorene. Attention is directed to compounds (Ib-3,4,7,8,11,12,14,16,18,21,22,24) in which a non-hydrogen substituent is present on the anthracene ring. This fulfills the condition of claim 1 of the instant invention in which either, a or b is not zero.

As to claims 3-7, 9 and 10:

Paragraphs [0044]-[0046], figures 1, 2, 3, teach various electroluminescent device structures. The passage additionally teaches that arylamines can be used as hole transport materials and that the hole transport layer can also act as a light emitting layer.

Paragraphs [0112]-[0119], teach the fabrication of the electroluminescent device having compounds of formula (I) in the light emitting layer. The light emitting layer can additionally include a dopant.

Claims 1-7, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishida et al., EP 1,221,434 hereinafter known as Ishida.

Ishida teaches:

Paragraphs [0006] - [0008], formulas (1) - (6), teach hydrocarbon compounds having an anthracene ring to which a fluorene is directly bound which are useful in an electroluminescent device.

Paragraphs [0009]-[0010], figures 1-8, teach various electroluminescent device structures.

Paragraphs [0014]-[0024], teach various substituents for compounds of formula (1). With respect to the structure of compound (1) attention is directed to compounds A-28, A-30, A-33, B-28, B-30, B-32, C-36, C-37, C-38, C-41, C-42, C-45, D-23, D-24, D-25, D-27, D-28, F-40, G-17, I-10, I-23, I-25, I-27, L-24, L-25, M-15, M-18, M-21, N-15, P-24, P-25, P-27, Q-10, Q-24, Q-27, and Q-28, of paragraph [0048] which provide structures meeting the claim limitation that when Ar is a substituted fluorene that (ii) of claim 1 in which the anthracene is substituted is satisfied. Ishida as noted in paragraphs

paragraphs [0014]-[0024] teaches equivalents to the substituents which meet the claim limitations with respect to number of carbons of the substituent groups.

Paragraphs [0022]-[0024] additionally teach the substituent to the anthracene ring can include naphthyl groups. The passage further teaches that groups listed as specific examples for X1 and X2 are suitable. For example, suitable groups include naphthyl, n-pentyl, n-octyl, n-decyl, and n-octadecyl.

Paragraph [0068], teaches that compounds of formula (1) can be used as a hole injection transport component, luminescent component, or electron transport compound of an electroluminescent device. Preferably, the compounds of formula (1) are used as hole injection transport components or luminescent components. Most preferably, the compounds of formula (1) are used as luminescent components.

Paragraph [0082], teaches the hole injection transport layer can be formed from a compound of formula (1) in combination with triarylamine or stilbene derivatives.

Paragraph [0087], teaches that compounds of formula (1) in combination with triarylamine derivatives can be used as the luminescent layer.

Paragraph [0089], teaches that compounds of formula (1) can be use singly or in combination with other luminescent compounds in the luminescent layer.

Paragraph [0090], teaches that when compounds of formula (1) are used in combination with other luminescent compounds a compound of formula can be present in the range of 0.001 to 99.999 weight percent of the combination.

Paragraph [0092], teaches that compounds of formula (1) can be used as host materials in the luminescent layer of an electroluminescent device.

Paragraph [0093], teaches that compounds of formula (1) can be used as host materials with triarylamine derivatives as the guest material in the luminescent layer of an electroluminescent device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al., EP 1,221,434 hereinafter known as Ishida as applied to claims 1-7 and 9-11 above, and further in view of Hosokawa et al., EP 1,167,488 hereinafter known as Hosokawa.

The teachings of Ishida as in the rejection above are relied upon.

Ishida does not teach:

Ishida does not recite styrylamine derivatives as a component of the light emitting layer. However, Ishida teaches arylamine derivatives as a component of the light emitting layer.

Ishida additionally teaches stibene derivatives as hole transport materials in addition to arylamines.

Hosokawa teaches:

Paragraphs [0008]-[0009], teach an organic light-emitting medium for an electroluminescent device comprising a styryl derivative and an anthracene derivative.

Paragraph [0016], formula (III), teaches styryl amine derivatives. Attention is directed to pages 28 and 29 of the specification, formulas (A) and (B), opposite formula (III) of Hosokawa.

Paragraph [0037], provides examples of styryl amine derivatives. Compounds EM32-EM61 meet the limitations of an arylamine and a styrylamine as required by claims 7 and 8 as their respective structures contain a nitrogen bonded to three aromatic (aryl) groups as required in the styryl- and aryl- amine definitions (A) and (B), see pages 28 and 29 of the specification. Attention is directed to compounds EM32, EM36, EM39, and EM51 as compounds used in examples as referenced below.

It would have been obvious to one of ordinary skill in the art to use a styrylamine of Hosokawa in combination with an anthracene derivative in the light emitting layer of the electroluminescent device of Ishida in combination with an anthracene derivative of Ishida as taught by Hosokawa and suggested as suitable by Ishida. The styrylamines of Hosokawa are a subset of arylamines and Ishida teaches arylamines and suggests the phenyl ring and double bond styryl structure in the suitability of stilbene derivatives for use as hole transport materials in conjunction with or in place of arylamines. One of ordinary skill in the art would expect to obtain suitable and predictable results by the inclusion of the styrylamines of Hosokawa in the light emitting layer of Ishida.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brett A. Crouse whose telephone number is 571-272-6494. The examiner can normally be reached Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terell H. Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BAC/ 4 December 2007

MILTON I. CANO
SUPERVISORY PATENT EXAMINER